



# Mac OS X Server Overview

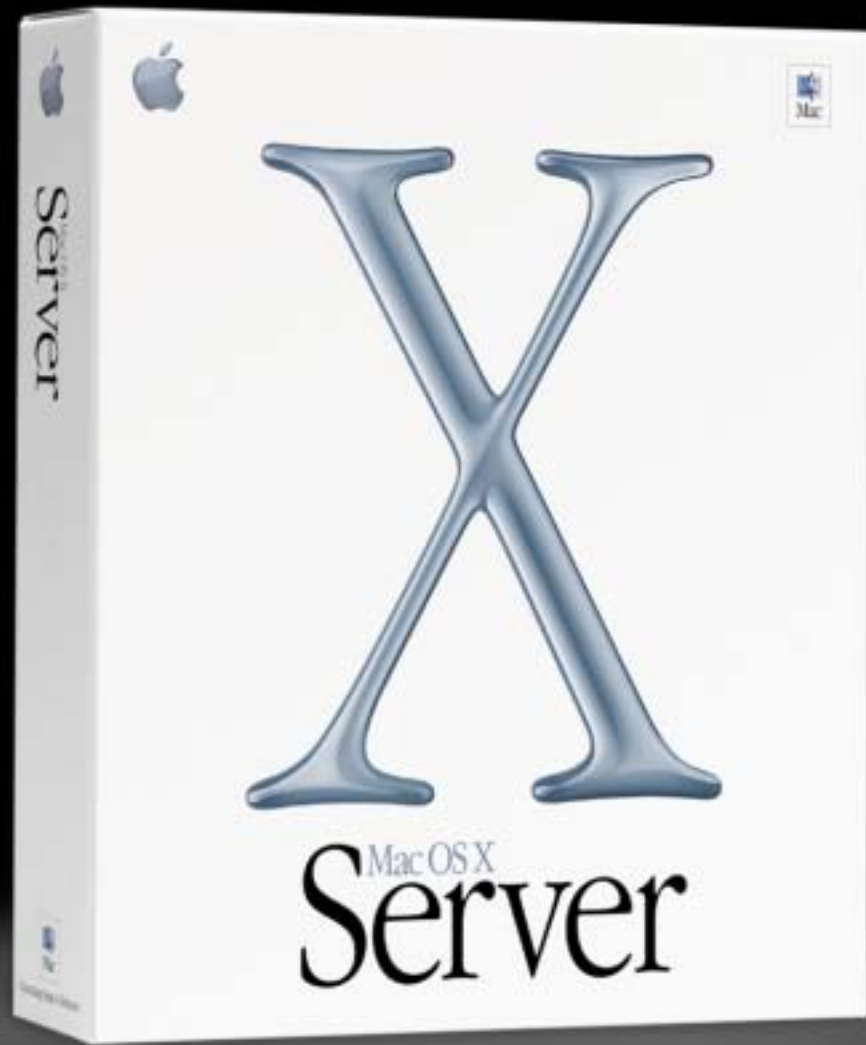
## Session 801





# Mac OS X Server Overview

**Eric Zelenka**  
**Mac OS Product Marketing, Server Software**  
**Apple Computer**



# Agenda

- Apple's server strategy
- What's new in "Jaguar Server"
  - Demos
- Unique server features
- Developer opportunities
- Q&A



# The Schedule

**Mac OS X Server  
Version 10.0**

May 21, 2001

**Mac OS X Server  
Version 10.1**

September 29, 2001

**Jaguar Server  
Developer  
Preview**

May 6, 2002

**Jaguar Server  
Ship to  
Customers**

2002



# Apple's Server Strategy

- Deliver innovative, scalable server solutions
- Premier platform for high-performance, easy-to-use workgroup and Internet server solutions
- Use servers to improve the Macintosh computing experience



# Why Servers?

**Servers are key to improving the computer experience**

- Servers play a critical roll in today's computing environments
- Servers can be used to improve the Macintosh computer experience



# Goal for “Jaguar Server”

- Make it easier to deploy and manage Mac OS X systems
- Enable the perfect Mac OS X workgroup
- Improve the Macintosh computing experience
- Integrate well into existing enterprise networks
- Continue to deliver best of breed Internet and networking services







# What Is New?

- Improved performance and scalability
- New Administration Tools
- File and Print enhancements
- Open Directory
- Workgroup Management
- NetBoot and Network Install
- Web and Mail services
- IP Fail-over and Monitoring



# Faster and Faster . . .

## System-wide performance enhancements

- Improved network file service performance
- Greater multiprocessor scalability
- Faster Gigabit Ethernet



# Faster Java Performance

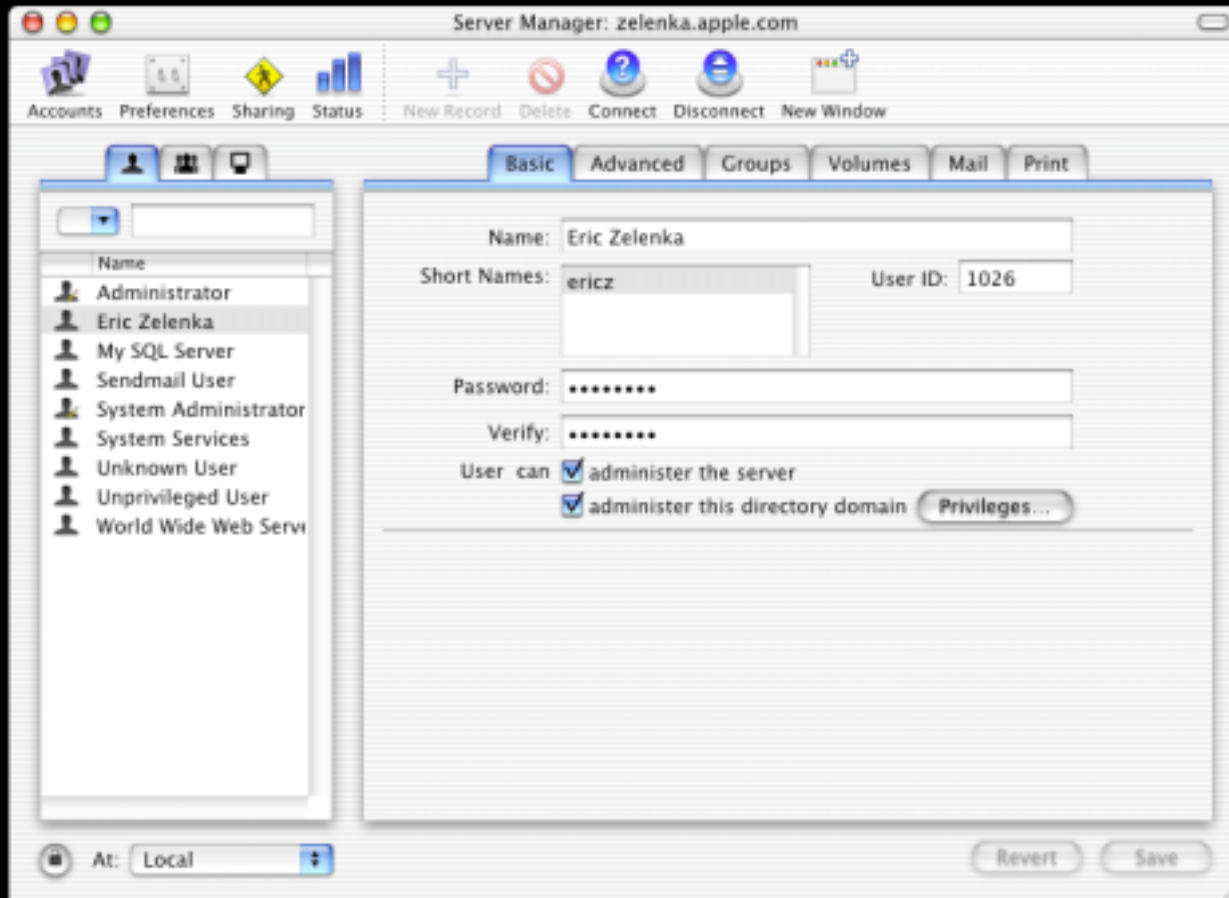
## Improved server-side Java performance

- Java virtual machine customized for server use
- Optimized for hosting server-side applications
  - WebObjects 5.1
  - Jakarta Tomcat
    - Java Servlets
    - JavaServer Pages



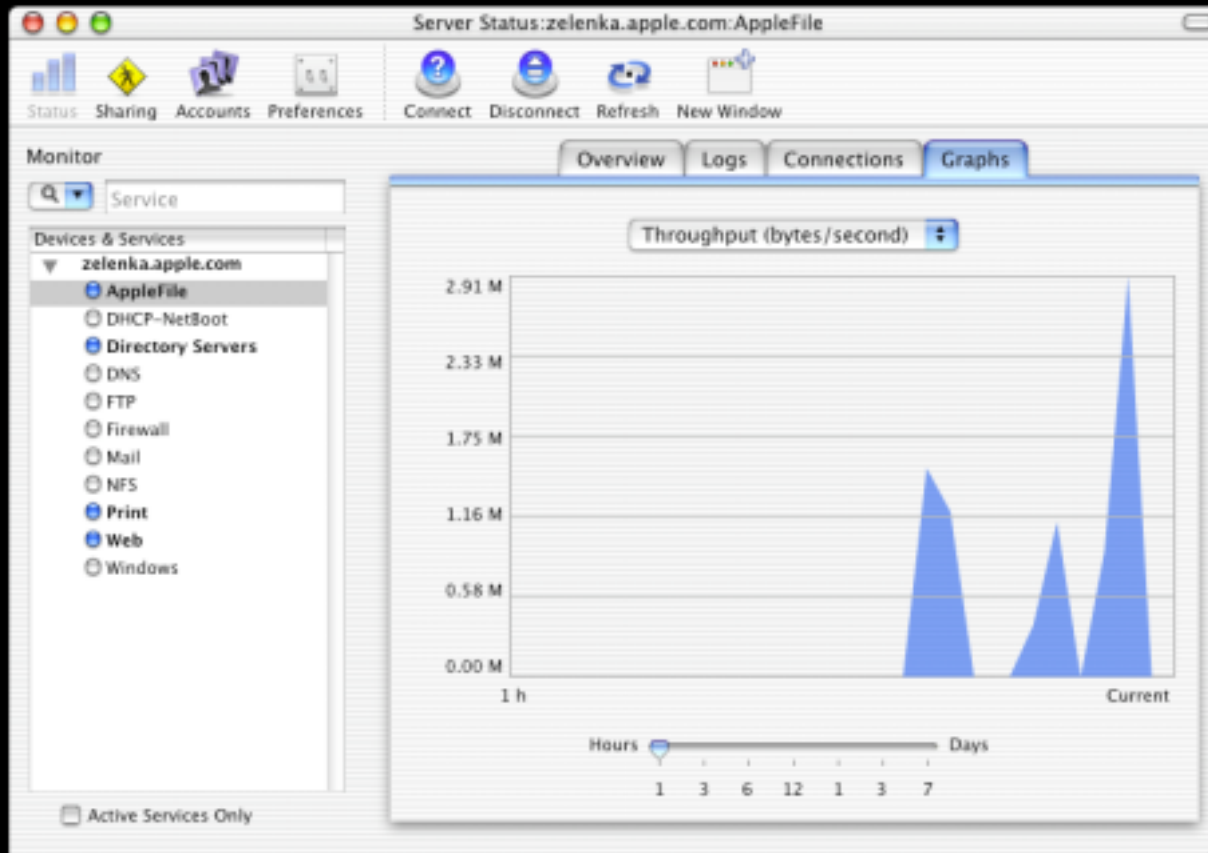
# Server Manager

New management and administration tools



# Server Status

New management and administration tools





Demo

# Apple File Services

- Improved performance and scalability
- Home directory support
- Apple Filing Protocol v3.1
  - Auto-reconnect
- Secure file sharing
- NFS resharing via AFP
- Kerberos v5 authentication



# Secure File Sharing

Encrypted file sharing connections using SSH





# Print Services

**For Macintosh, Windows, and UNIX clients**

- AppleTalk print queues
- PAP support for printer discovery via Chooser
- Print quotas
  - Per user basis
  - Per print queue



# Directory Services

- What are directory services?
  - Enables the storage and management of Mac OS X user, group, and computer information
  - Database of shared information
- NetInfo history





Open Directory



# What Is Open Directory?

- Open Directory is Apple's standards-based directory services architecture
- Extensible architecture allows for easy integration with enterprise directory services
- Uses industry standards including LDAP, and SASL support including NT/LAN Manager, CRAM-MD5, SHA-1 authentication methods
- Provides shared name and password allowing users to log onto and access authorized systems anywhere on the network



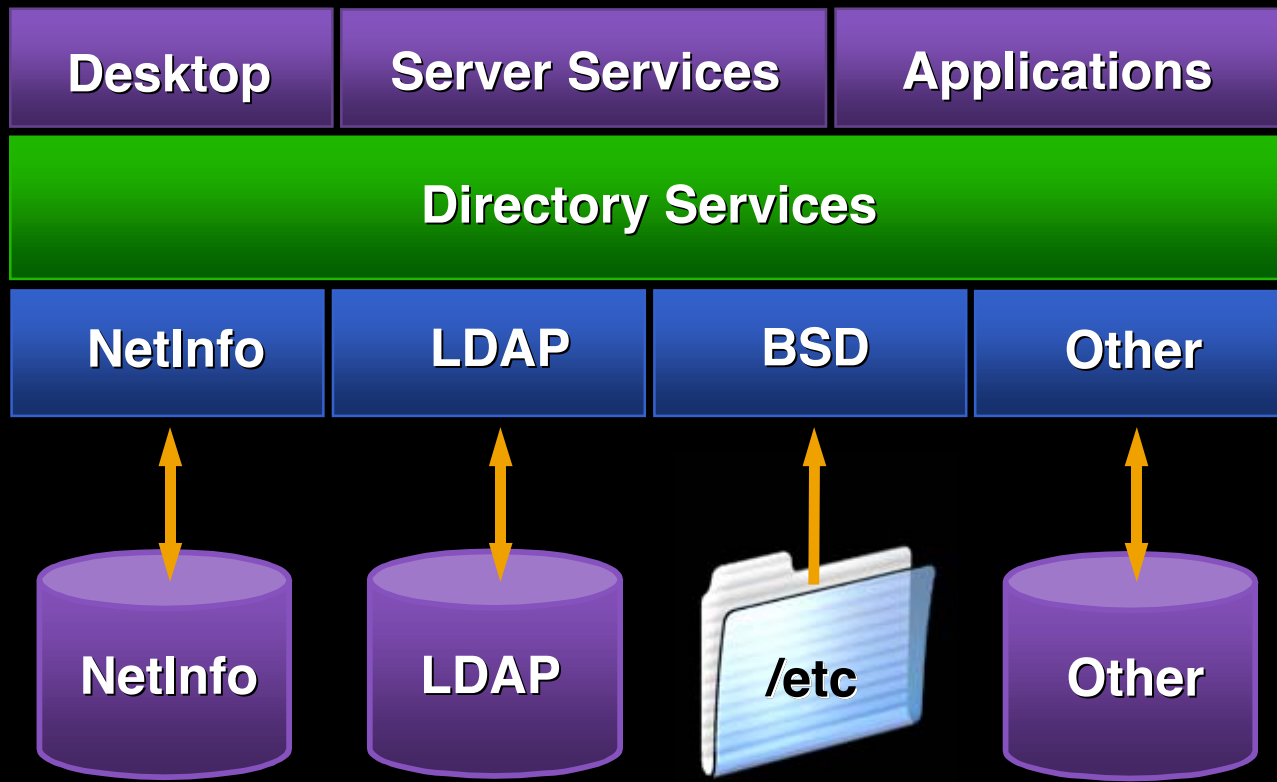
# Open Source Today

- Part of Darwin today (May 6th, 2002)
  - <http://www.apple.com/darwin>
  - DirectoryService
    - API Framework and daemon
  - LDAPv2, NetInfo, and Search Policy
- Jaguar
  - DSAgent for lookupd
  - LDAPv3 plug-in
  - BSD Configuration file plug-in
    - Read only
  - Service Discovery plug-ins

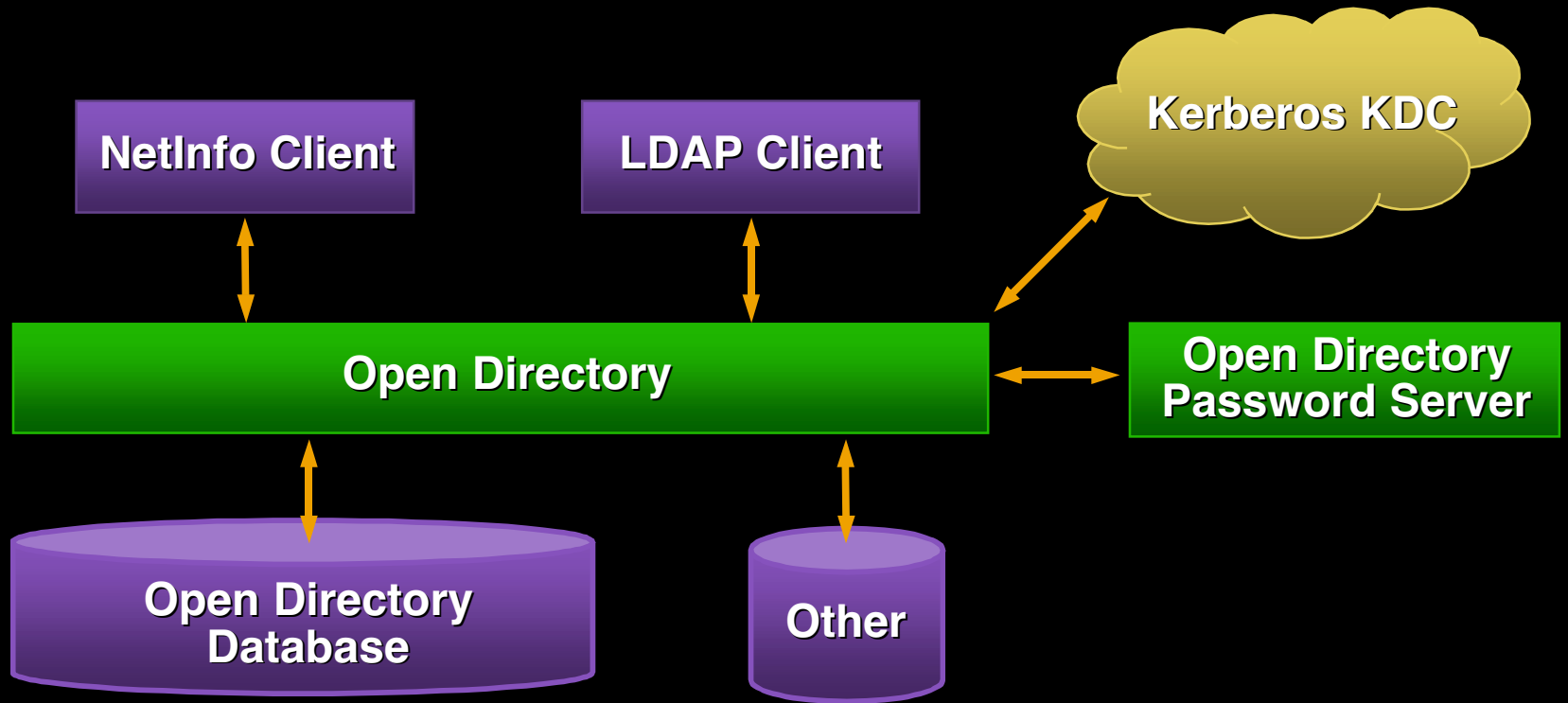


# Open Directory Access

Standards-based directory services architecture



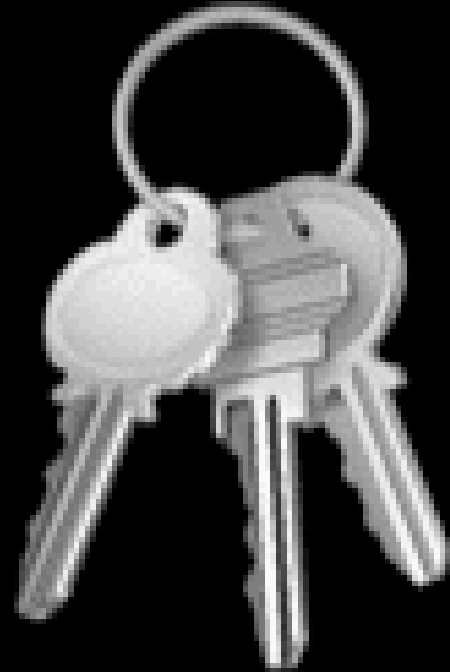
# Open Directory Server



# Open Directory Password Server

**Secure password authentication, policy enforcement**

- Force user to change password at next login
- Disable user account on/after a certain date
- Enforce minimum password length
- Disable inactive accounts after a period of non-use





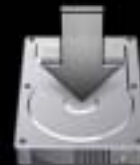
# Workgroup Manager



# Workgroup Manager

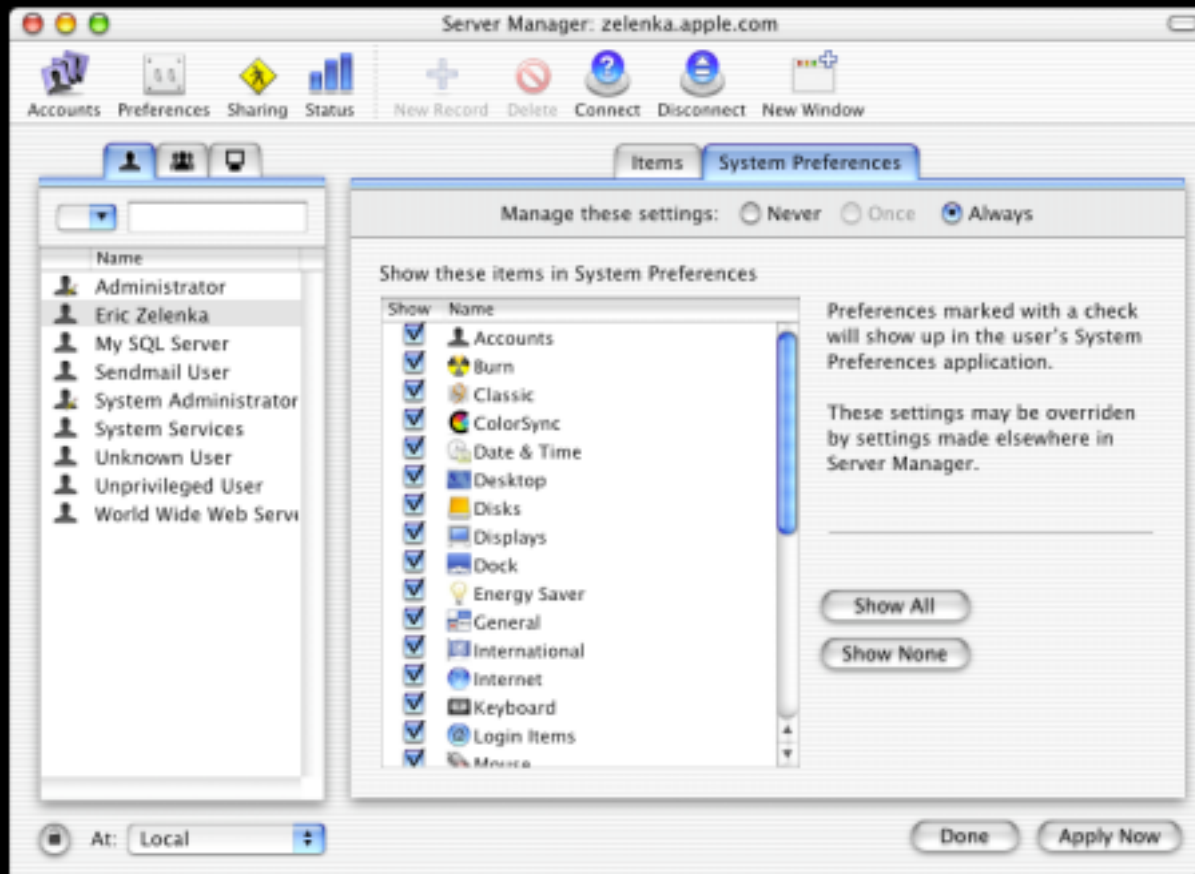
**Setup and manage users, groups, and computers**

- Makes it easier to setup and manage users, groups and computers
- Control access to software and hardware features
- Designed for desktops and portables



# Workgroup Manager

New management and administration tools



# Workgroup Manager

## How to deploy the perfect Mac OS X workgroup

- Shared group directories
  - /Group/My Workgroup/
- Specify disk quotas
- Allows the user to select workgroup at login



# Managed Preferences

**For users, groups, and computer lists**

- Applications access
- System Preference access
- Classic
- Media Access
  - Control media access
  - Prevent burning
- Dock Display
- Dock Items
- Finder Preference
- Finder Commands and Views
- Internet Preferences
- Login Preferences
- Login Items
- Printers
  - Printer lists, defaults
  - Control printing
  - Lock printer access





Demo

# NetBoot

**Simplify administration and reduce support**

- Boot from a system image located on your network
- Host separate images for each department
- Use to deploy network diagnostic and repair utilities



# Network Install

## Automated network software installation service

- Install, restore, or upgrade networked computers
- Manual or automated installations
- Install OS and custom software packages
- Deploy software updates





# Web Services

**Apache—the world's most popular web server**

- Improved performance and scalability
- >4,800 cps WebBench 3
- Administration of Apache 1.3
- Apache 2.0 included on disk



# Mail Services

**Secure, easy-to-use mail services**



- More reliable, robust
- SSL IMAP support
- Mail store flexibility
- Improved SMTP relay restrictions
- User storage quotas



# WebMail

**Email account access from browser or portable device**



- Standards-based webmail written in PHP
- Support for IMAP and SMTP protocols
- Maximum browser compatibility
  - Pure HTML 4.0
  - No JavaScript
- MIME support, address books, folder manipulation



# IP Fail-over

**High availability service to maximize server uptime**

- 2 node system
- One or two way failover
  - A  $\longrightarrow$  B
  - A  $\longleftrightarrow$  B
- Designed for read-only services with minimal replication needs
- Supports email notification of the failover and successful failback



# IP Fail-over

**High availability service to maximize server uptime**

- Great for:
  - DNS servers
  - Proxy cache servers
  - Static web sites
  - Media broadcast servers
  - Other services with built-in replication, minimal state, or back-end storage systems



















# Unique Server Features

# Unique Server Features









## Operating system differences

	Jaguar	Jaguar Server
Darwin		
BSD Networking		
Software RAID		
Secure Shell		
Classic support		
Java 2 Standard Edition		
Java VM for server use		



# Unique Server Features

## High availability services

	Jaguar	Jaguar Server
Restart on power failure		
Hardware reboot		
Auto service restart		
IP Fail-over		





# Unique Server Features

## Remote administration and monitoring

Jaguar

Jaguar Server

Remote administration



Service monitoring



Log archiving

















Drive space monitoring



# Unique Server Features











## Account management

	Jaguar	Jaguar Server
User accounts		
Group accounts		
Computer lists		
Long user names		
Long passwords		
Home directory admin		
Quotas		



# Unique Server Features

## Directory and authentication services

	Jaguar	Jaguar Server
Open Directory Server		
Password Server		
LDAPv3 client		
NetInfo client		
BSD config file (/etc)		





# Developing for Mac OS X Server

# Develop for Mac OS X Server

**Build your product for Mac OS X Server if...**

- Product is deployed as a network resource
- Requires maximum reliability
- Is not an end-user application
  - Can run without a logged in user
  - Might be a BSD process
- Your product can benefit from:
  - Other services of Mac OS X Server
  - Server-specific features, i.e., Watchdog, IP Fail-over

# Why Develop for Mac OS X Server?

## Apple is committed to servers

- Apple is using servers to improve the computing experience
  - Building workgroups
  - Integrating into enterprise networks and architectures
  - Making it easy to setup, manage, and deploy Mac OS X
- Mac OS X Server is Apple's server operating system
  - Specifically designed to be a server
  - One operating system, two versions



# Why Develop for Mac OS X Server?

**Growing market, with excellent growth potential**

- 5% down, 95% to go . . . .
- Growing market for Apple, and you!
- Apple will become the largest distributor of UNIX



# Developer Opportunities

- Server Management and Administration
  - Log analysis, reporting, history
  - Server monitoring (SNMP MIBs)
  - Backup and restore
- Middleware
  - Apache modules
  - Web services
  - WebObjects applications
  - Java Servlets
  - Database access





# Developer Opportunities

- Network file systems
- Local file systems
  - Journaling
  - Software RAID
- Logical volume management
- Volume replication and synchronization



# Developer Opportunities

- High-end professional printing solutions
  - RIPs
  - Print job accounting
- Distributed computing
  - Computational clusters
  - Render farms



# Developer Opportunities

**Develop your product for Mac OS X Server**

- Open Directory Access Plug-ins
  - NIS, NIS+
  - Novell eDirectory (LDAPv3 with custom extensions)
  - On the fly schema translation
  - Site specific
- Open Directory Administration tools
  - Directory migration
  - Replication
  - Archival and recovery



# Developer Opportunities

- Server hardware solutions
  - RAID
  - Large storage arrays
  - UPS
  - Backup devices



# Roadmap

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**802 Mac OS X Server in Depth**

Room A2  
**Mon., 5:00pm**

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**810 NetBoot and Network Install**

Room J  
**Thurs., 10:30am**

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**813 Directory Services**

Room C  
**Thurs., 3:30pm**

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**814 Kerberos in Mac OS X**

Room C  
**Thurs., 5:00pm**

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# Roadmap

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**815 Developing for the  
Managed Desktop**

Room J  
**Fri., 9:00am**

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**FF017 Feedback Forum:  
Server Services**

Room J  
**Fri., 5:00pm**

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# Who to Contact

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## **Tom Weyer**

Networking and Communications Evangelist

[weyer@apple.com](mailto:weyer@apple.com)

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## **Eric Zelenka**

Mac OS Product Marketing, Server Software

[ericz@apple.com](mailto:ericz@apple.com)

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# Server Feedback

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**FF017 Feedback Forum:  
Server Services**

Room J  
**Fri., 5:00pm**

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**[server-feedback@apple.com](mailto:server-feedback@apple.com)**

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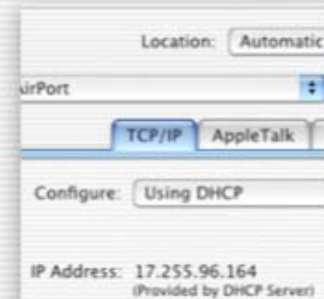
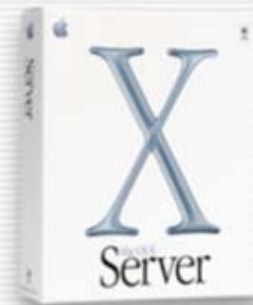
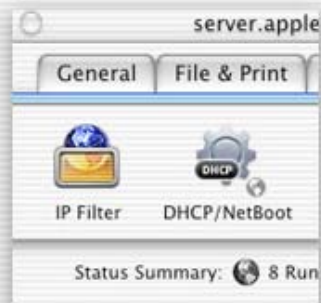
# For More Information

- Mac OS X Server Administrators Guide
  - On Mac OS X Server “Jaguar” Admin Tools CD
- Mac OS X Server web site  
[www.apple.com/macosx/server/](http://www.apple.com/macosx/server/)
- Darwin Server  
[developer.apple.com/darwin/](http://developer.apple.com/darwin/)





# Q&A



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**Mac OS Product Marketing, Server Software**  
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**<http://developer.apple.com/wwdc2002/urls.html>**

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